IS 11479 (1985): Antibacterial toilet soap [CHD 25: Soaps and other Surface Active Agents]

BLANK PAGE

IS : 11479 - 1985

(Reaffirmed 1991)

Indian Standard

SPECIFICATION FOR ANTIBACTERIAL TOILET SOAP

UDC 661·187·842

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

November 1986

Gr 4

Indian Standard

SPECIFICATION FOR ANTIBACTERIAL TOILET SOAP

Soaps and Other Surface Active Agents Sectional Committee, CDC 35

Chairman	*Representing*
DR B. P. GODREJ	Godrej Soaps Ltd, Bombay
Members	
SHRI M. S. THAKUR (*Alternate* to Dr B. P. Godrej)	
SHRI S. N. AGGARWAL	Directorate General of Technical Development, New Delhi
SHRIMATI KRISHNA BASRUR	Consumer Guidance Society of India (Regd), Bombay
SHRI S. K. BASU	Directorate General of Supplies & Disposals (Inspection Wing), New Delhi
SHRI P. C. BAWARI	Indian Soap & Toileteries Makers' Association, Bombay
SHRI R. S. VAIDYANATHAN (*Alternate*)	
DR S. G. BHAT	Tata Oil Mills Co Ltd, Bombay
SHRI F. E. DARUWALA (*Alternate*)	
SHRI N. C. CHATTERJEE	National Test House, Calcutta
SHRI P. K. CHAKRABORTY (*Alternate*)	
CHIEF CHEMIST	Central Board of Revenues (Ministry of Finance), New Delhi
DEPUTY CHIEF CHEMIST (*Alternate*)	
SHRI R. C. DOSHI	Non-Power Soap Manufacturers Association, Bombay
SHRI Y. R. DOSHI (*Alternate*)	
SHRI SANTOSH DUTTA	West Bengal Small Scale Soap Makers' Association Limited, Calcutta
SHRI DILIP DUTTA (*Alternate*)	
SHRI P. V. GUJARATHI	Khadi & Village Industries Commission, Bombay
SHRI V. K. B. NAIR (*Alternate*)	
SHRI P. P. KHANNA	Nand Kishore Khanna & Sons, Bombay
SHRI N. K. KHANNA (*Alternate*)	

(*Continued on page* 2)

(*Continued from Page* 1)

Members	*Representing*
SHRI C. R. KRISHNAMOORTY	Swastik Household & Industrial Products Ltd, Bombay
DR V. K. BANSAL (*Alternate*)	
DR M. K. KUNDU	Directorate of Vanaspati, Vegetable Oils & Fats, New Delhi
SHRI P. R. MALHAN	Development Commissioner, Small Scale Industries, New Delhi
SHRI P. SATYANARYAN (*Alternate*)	
DR K. S. NARAYAN	Hindustan Lever Ltd, Bombay
SHRI V. U. MARBALLI (*Alternate*)	
DR V. N. NIGAM	Ministry of Defence (DGI)
SHRI P. K. MAJUMDAR (*Alternate*)	
SHRI V. M. PAI	Karnataka Soaps & Detergents Ltd, Bangalore
SHRI S. S. REVADI (*Alternate*)	
SHRI K. K. PATEL	Nirma Chemical Works Pvt Ltd, Ahmadabad
SHRI G. G. DAVE (*Alternate*)	
SHRI SANTOSH KUMAR	Federation of Association of Small Scale Soaps & Detergents Manufacturers of India, New Delhi
SHRI R. C. DOSHI (*Alternate*)	
SHRI K. P. SHARMA	Shriram Foods & Fertilizers Industries, New Delhi
SHRI K. C. MATHUR (*Alternate*)	
DR A. K. VASISHTHA	Oil Technologists' Association of India, Kanpur
PROF V. V. R. SUBRAHMANYAM (*Alternate*)	
SHRI M. M. VYAS	Gujarat Detergent Manufacturers Association, Ahmadabad
SHRI SATISH CHANDER, Director (Chem)	Director General, ISI (*Ex-officio Member*)

Secretary

DR R. K. BAJAJ

Assistant Director (Chem), ISI

Soaps Subcommittee, CDC 35 : 1

Convener	
DR S. G. BHAT	Tata Oil Mills Co Ltd, Bombay
Members	
SHRI F. E. DARUWALA (*Alternate* to Dr S. G. Bhat)	
SHRI S. N. AGGARWAL	Directorate General of Technical Development, New Delhi
SHRI J. A. ASHTAPUTRE	Ministry of Defence (DGI)
SHRI P. N. AGARWAL (*Alternate*)	
SHRI A. C. CHAKRABORTY	Kusum Products Ltd, Rishra
SHRI D. S. CHAUDHURY	Directorate General of Supplies & Disposals, New Delhi

(*Continued on page* 16)

Indian Standard

SPECIFICATION FOR ANTIBACTERIAL TOILET SOAP

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 15 November 1985, after the draft finalized by the Soaps and Other Surface Active Agents Sectional Committee had been approved by the Chemical Division Council.

0.2 Human skin provides a favourable environment for the existence and multiplication of a variety of microbes. The conventional toilet soap washes away the germs but does not kill them. The function of an antibacterial or antiseptic toilet soap is not only to clean the skin, but also to reduce drastically the bacterial count on the skin. This prevents skin infections and perspiration odour caused by the decomposition of perspiration by bacteria.

0.3 Antibacterial toilet soap is used by surgeons who require pre-surgical scrubbing with such antibacterial toilet soap and for similar other end uses.

0.4 The antibacterial toilet soap is specially effective against *staphylococcus* and similar bacteria which have the habit of residing in the under layers of skin. The antibacterials are substantive to the skin and this tackles the microbes between two washes. Antibacterial toilet soaps shall be used regularly to be effective.

0.5 While preparing this standard, the committee responsible for preparation of this standard held detailed deliberation on antibacterial agents. After a thorough scrutiny of the literature, the committee has recommended the use of only three such antibacterial agents, namely, hexachlorophene (HCP), Irgasan DP 300 and Trichlorocarbanilide (TCC) and their maximum permissible limits have been prescribed as 1 percent by mass, either singly or in combination.

0.6 The requirements of the conventional grade of toilet soaps are given in IS : 2888 - 1983*.

*Specification for toilet soap (*second revision*).

0.7 For the pursose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2 - 1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and methods of sampling and test for antibacterial toilet soap.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in **2** of IS : 286 - 1978† shall apply.

3. REQUIREMENTS

3.1 Description — Antibacterial toilet soap shall be a high grade, thoroughly saponified, milled soap or homogenized soap or both, white or coloured, perfumed, and compressed in the form of firm and smooth cakes, and shall possess good cleaning and lathering properties.

3.2 Ingredients — In addition to perfume, moisture, normal colouring matters, preservatives acceptable in toilet soaps in general, the antibacterial soap shall contain permitted antibacterial agent (*see* **3.2.1**). The label shall clearly state the antibacterial agent used and its level. The soap shall pass the antibacterial activity test when determined by the method given in Appendix A.

3.2.1 Hexachlorophene (HCP), Irgasan DP 300 and Trichlorocarbanilide (TCC) shall not exceed 1 percent by mass either singly or in combination, when tested by the methods prescribed in Appendices B, C and D respectively.

NOTE — TCC is not heat stable and decomposes into chloroanilines on prolonged heating above 60°C. If TCC is used in soap, the manufacturer should take care that such soap is not subjected to temperature above 60°C during the entire manufacturing process or during storage.

3.3 Antibacterial toilet soap shall also comply with the requirements specified in Table 1.

*Rules for rounding off numerical values (*revised*).

†Methods of sampling and test for soaps (*second revision*).

TABLE 1 REQUIREMENTS FOR ANTIBACTERIAL TOILET SOAP

(*Clause* 3.3)

Sl No.	Characteristic	Requirement	Method of Test, Ref to Cl No. in IS : 286 - 1978*
(1)	(2)	(3)	(4)
i)	Total fatty matter, percent by mass, *Min*	76·0	15
ii)	Rosin acids, percent by mass, of total fatty matter, *Max*	3·0	14
iii)	Free caustic alkali, as sodium hydroxide (NaOH), percent by mass, *Max*	0·05	6.2
iv)	Free carbonated alkali, as sodium carbonate (Na_2CO_3), percent by mass, *Max*	1·0	28
v)	Matter insoluble in alcohol, percent by mass, *Max*	2·5	5

*Methods of sampling and test for soaps (*second revision*).

3.3.1 *Calculation of Results* — Antibacterial toilet soap is liable to lose moisture on keeping. The results of analysis in respect of free caustic alkali, free carbonated alkali and matter insoluble in alcohol shall be recalculated in relation to the minimum specified total fatty matter by means of the following equation :

$$\text{Recalculated result} = \text{Actual result} \times \frac{\text{Minimum specified total fatty matter}}{\text{Actual total fatty matter}}$$

4. PACKING AND MARKING

4.1 Packing — The material shall be packed as agreed to between the purchaser and the supplier.

4.2 Marking — The packages shall be securely closed and marked with the following particulars :

a) Name of the manufacturer;

b) Brand name of the material and recognized trade-mark, if any;

c) Name and percentage of antibacterial chemicals used;

d) Net mass when packed;

e) Batch No. or lot No. in code or otherwise; and

f) Month and year of manufacture.

4.2.1 In case the material contains hexachlorophene, it shall bear on its wrapper the following cautionary note in conspicuous manner.

'CONTAINS HEXACHLOROPHENE — NOT TO BE USED ON BABIES.'

4.2.2 The packages may also be marked with the ISI Certification Mark.

NOTE—The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

5. SAMPLING

5.1 For this purpose general precautions, scale of sampling and preparation of test samples shall be as prescribed in **3.1**, **3.2** and **3.3**, respectively of IS : 286 - 1978*.

5.2 Number of Tests

5.2.1 Tests for the determination of total fatty matter and free caustic alkali and matter insoluble in alcohol shall be conducted on each of the individual samples separately.

5.2.2 Tests for determination of all the remaining characteristics shall be conducted on the composite sample.

5.3 Criteria for Conformity

5.3.1 *For Individual Samples* — For each of the characteristics which has been determined on the individual samples (**5.2.1**) the mean ($\bar{X}$) and the range (R) of the test results shall be calculated as follows:

$$\text{Mean } (\bar{X}) = \frac{\text{the sum of test results}}{\text{number of test results}}$$

Range (R) = The difference between the maximum and the minimum value of the test results.

*Methods of sampling and test for soaps (*second revision*).

The lot shall be deemed as conforming to the requirements given in **5.2.1** if the expression ($\bar{X} - 0{\cdot}6\ R$) is greater than or equal to minimum value given in Table 1, and ($\bar{X} + 0{\cdot}6\ R$) is less than or equal to maximum value given in Table 1.

5.3.2 *For Composite Sample* — For declaring the conformity of a lot to the requirements of other characteristics determined on the composite sample, the test results for each of the characteristics shall satisfy the relevant requirement.

6. TESTS

6.1 Tests shall be conducted as prescribed in IS : 286-1978*, and in Appendices A, B, C and D. References to relevant clauses of IS : 286 - 1978* is given in col 4 of Table 1 and that of Appendices in **3.2, 3.2.1, 3.2.2** and **3.2.3.**

6.2 Quality of Reagents — Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070 - 1977†) shall be employed in the tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

APPENDIX A

(*Clause* 3.2)

DETERMINATION OF ANTIBACTERIAL ACTIVITY

A-0. GENERAL

A-0.1 Two methods have been prescribed, namely, serial dilution method and substantivity test. The serial dilution test shall be the screening test and the substantivity test shall be the absolute test.

A-1. SERIAL DILUTION TEST

A-1.0 Outline of the Method — Antibacterial activity is determined by serial dilution method by comparing the effectiveness of antibacterial chemicals present in 10 micrograms of soap per ml specified as the maximum inhibitory concentration.

*Methods of sampling and test for soaps (*second revision*).

†Specification for water, for general laboratory use (*second revision*).

A-1.1 Apparatus

A-1.1.1 *Culture Tubes, Rimless* — 150 × 18 mm.

A-1.1.2 *Sterilized Pipettes* — 10 ml, 5 ml and 1 ml capacities.

A-1.1.3 Loop made of stainless steel or platinum wire.

A-1.1.4 *Conical Flasks* — 250-ml capacity.

A-1.2 Nutrient Broth

A-1.2.1 Dissolve 5 g of beef extract, 5 g of sodium chloride, 10 g of peptone in one litre of distilled water by warming over a water bath. Cool and adjust the *p*H to 7.2 to 7.6 with sodium hydroxide solution. Distribute 9 ml each to the culture tubes. Plug the tubes with non-absorbent cotton wool and sterilize in an autoclave for half an hour at 1 kg/cm^2 pressure.

A-1.2.2 Take 99 ml and 90 ml of distilled water in 250-ml conical flask. Plug them with non-absorbent cotton wool and sterilize in an autoclave.

A-1.2.3 Get a pure stain of *staphylococcus aureus*. Maintain on nutrient agar medium. Transfer to a fresh slant every month and keep in the cold. Use a 24 hours nutrient broth culture for the experiment.

A-1.3 Procedure

A-1.3.1 Aseptically transfer 1 g of the soap sample to the flask containing 99 ml of water. Dissolve by slight warming. Transfer 10 ml of this solution to another flask containing 90 ml of water. Take 1 ml of this solution and add 9 ml of nutrient broth in a culture tube. This gives a concentration of 100 μg/ml.

A-1.3.2 To three tubes containing 9 ml nutrient broth add 1 ml each of the above solution to get a concentration of 10 μg of soap per ml of nutrient broth in each tube. Inoculate the tubes with a loopful of the 24 hours culture of *staphylococcus aureus* and keep them in an incubator maintained at 37°C. Keep a control tube of nutrient broth containing the same concentration of soap.

A-1.3.3 If after 24 hours incubation period, the liquid in all the three tubes is as clear as the control, the soap sample passes the test. Any turbidity more than the control shows the growth of bacteria.

A-2. SUBSTANTIVITY TEST

A-2.0 Basic Principles — For a soap to have antibacterial activity, it shall satisfy two criteria :

a) It shall show, antibacterial activity on the skin even after the soap is rinsed away, that is, the germicide should be retained on the skin under the conditions of use.

b) The antibacterial activity should be retained on the skin for some period so as to provide protection to the skin.

A-2.1 The test devised gives a measure of both these properties. The test involves application of soap solution on the forearm, rinsing it off in running water and allowing it to dry. Known micro-organisms are applied immediatly in prescribed areas and assayed by swabbing at 0 and 10 minutes. The percent reduction in survivors in 10 minutes is determined. Similarly the soap solution after rinsing is allowed to remain on the skin for 2 hours. The test micro-organisms are applied to the skin at this time in prescribed areas and assayed by swabbing at 0 and 10 minutes. The percent reduction in survivors is determined. If the reduction in survivors at this time is greater than 40 percent, the germicide is said to be substantive.

A-2.2 Method

A-2.2.1 *Test Micro-organisms* — The test organisms, consist of a mixed skin flora, prepared by collecting washings from the arms and forearms of at least 5 individuals using 50 ml of sterile water in each case. Ten ml aliquot of each washing is individually inoculated into flasks containing 90 ml of sterilised nutrient broth. Culture is allowed to grow overnight at 30°C and flasks showing turbidity are pooled together. The mixed culture is transferred through broth and grown as above at least 3 times and finally maintained as Tryptone-Agar-Glucose Yeast Extract (TGYE) agar slants. For a test culture, an overnight slant culture is suspended into sterile saline and adjusted to a cell population of 1×10^7 cells per ml.

A-2.2.2 *Test Procedure*

A-2.2.2.1 A number of 4 cm^2 areas (2×2 cm) are marked out on the innerside of the forearm. 0·1 ml aliquot of an 8 percent soap solution with germicide is applied onto individual squares and allowed to dry for 1 minute. The areas are then washed with a gentle flow of tap water for two minutes, dried by blowing warm air. The retentivity of the

germicide on skin and its antibacterial action are then assayed by applying 0·1 ml of mixed skin flora (10^7 cells/ml) onto 4 such squares at 0 h. Two of the squares are swabbed immediately using standard Johnson's swabs. Swabs are placed in 5 ml saline solutions. Contents are shaken well in a vortex mixer and ten-fold dilutions are prepared. Bacterial cells are assayed on Tryptone-Glucose-Yeast Extract agar plates to determine the initial count. After 10 minutes, two other squares are swabbed and assayed in a similar manner.

A-2.2.2.2 In another set of tests, soap solutions are applied to the 4 more squares, rinsed and dried. After allowing 2 hours interval, 0·1 ml of culture is applied as above to 4 squares. Two of the squares are swabbed and assayed at 0 h and remaining two after 10 minutes. Survivals at 0 h and after 2 hours are determined.

A-2.3 The soap shall be considered to have passed the test if the percent kill is greater than or equal to 45 percent after two hours challenge.

APPENDIX B

(*Clause* 3.2.1)

DETERMINATION OF IRGASAN DP 300

B-0. GENERAL

B-0.1 **Principle**—Irgasan DP 300 is extracted from the soap and its content is determined by gas chromatographic method. The gas chromatographic method consists of hot-extraction of Irgasan DP 300 with acetone and evaporating an aliquot of the extract to dryness. The extract after dissolving in a solvent is subjected to gas chromatographic analysis.

B-1. APPARATUS

B-1.1 Gas Chromatograph

B-1.2 Recorder

B-1.3 Column — glass; length—1·2 m; inside diameter 2 mm.

B-1.4 Detector — electron capture detector (ECD), working voltage 90 V of flame ionization detector (FID).

B-1.5 Column Packing

a) With an ECD; OV 17÷2 percent on chromosorb G (60-80 mesh) or XE 60÷0·5 or 1 percent on chromosorb G (60-80 mesh); and

b) With a FID; XE 60÷1 percent on chromosorb G (80-100 mesh).

B-1.6 Syringe for Injection of Sample — Volume shall not exceed 10 µl and graduation of 0·2 µl or less shall be used.

B-2. REAGENTS

B-2.1 Carrier Gas — nitrogen 99·99 percent purity.

B-2.2 Acetone — distilled.

B-2.3 *n*-Hexane — chemically pure.

B-3. PROCEDURE

B-3.1 Homogenize a portion of the soap thoroughly. Weigh accurately about 2 g (to an accuracy of ± 1 mg) into a round-bottom flask. Add 100 ml of distilled acetone and 2-10 g of sodium sulphate into it. Reflux on a steam bath for 1 h and then cool to precipitate any residue. Evaporate a 50 ml aliquot of the clear supernatant solution and dissolve the residue obtained in *n*-hexane.

B-3.2 Concentration of Irgasan DP 300 in the test solution is as follows:

For ECD 0·1 to 0·2 mg/ml,

For FID 0·3 to 0·5 mg/ml, and

Size of the sample shall be 3 to 5 µl.

B-3.3 Switch on the gas chromatograph and the recorder and make the following settings:

Recorder sensitivity	1 mv
Paper speed	1 cm/min
Column temperature	200°C
Injection block temperature	210°C

NOTE — These parameters are given here to serve as a guideline only and may be varied to suit the requirements of the analysis.

B-4. RESULTS

B-4.1 Inject the test solution by means of the syringe and from peak heights/areas prepare a calibration plot for Irgasan DP 300 in the concentration range 0 to 2 percent and from the plot estimate the concentration of Irgasan DP 300 in the soap sample.

APPENDIX C

(*Clause* 3.2.1)

DETERMINATION OF HEXACHLOROPHENE

C-0. GENERAL

C-0.1 Principle — Hexachlorophene in antibacterial toilet soap is determined colorimetrically using ferric chloride as a complexometric reagent and measuring the absorption at 550 nm.

C-1. APPARATUS

C-1.1 Spectrophotometer

C-1.2 Constant Temperature Bath

C-1.3 Volumetric Flasks — 50 and 100 ml capacity.

C-1.4 Delivery Pipettes — 1 ml, 5 ml and 15 ml capacity.

C-1.5 Stop Watch

C-1.6 Filter Paper — Whatman's No. 1.

C-1.7 Funnels

C-2. REAGENTS

C-2.1 Methanol — anhydrous.

C-2.2 Ethyl Alcohol — (95 percent pure).

C-2.3 Ferric Chloride Solution — 2·5 g of $FeCl_3.6H_2O$ dissolved in 100 ml of distilled water. Fresh solution to be prepared every two or three days.

C-2.4 Barium Bromide Solution — Dissolve 50 g of $Ba\ Br_2.2H_2O$ in 500 ml of methanol.

C-2.5 Hexachlorophene solution in alcohol (1 ml = 0·005 g).

C-3. PROCEDURE

C-3.1 Preparation of Standard Curve — Weigh accurately 5·00 $\pm$ 0·05 g of milled soap chips into each of seven 100 ml volumetric flasks. Into six

of these flasks add 5, 10, 15, 20, 25 and 30 ml of standard hexachlorophene solution, respectively, leaving the seventh sample as a blank. These flasks contain 0·5, 1·0, 1·5, 2·0, 2·5, 3·0 and 0·04 percent hexachlorophene in 5·0 g soap sample. Add 55-60 ml ethyl alcohol and two or three glass beads to each flask and heat to boiling point on a hot plate over an asbestos wire gauge until all of the soap is dissolved. Remove the flasks singly and add 30 ± 1 ml of barium bromide solution while the soap solution is still at the incipient boiling point. Swirl for about one minute until the slurry is free of gel like agglomerations. Cool, thoroughly. Filter, one-half of the mixed slurry, collecting the filtrate in a 50 ml volumetric flask.

NOTE — A slight turbidity of barium carbonate from carbon dioxide in the air may develop in the filtrate upon standing, but this will disappear completely after dilution and the addition of ferric chloride.

C-3.1.1 Pipette a 5·0 ml aliquot into a 50-ml volumetric flask, add 15 ml ethyl alcohol at 25 ± 0·2°C and then add 1 ml of ferric chloride reagent while swirling the flask, allowing the pipette to drain for 25 seconds. Mix well. After reacting for 3·3 minutes at 25 ± 0·2°C, fill an absorption cell and determine the absorption at 550 nm.

C-3.2 Plot the absorption readings against hexachlorophene concentration to form the standard curve. It will be permanently valid on the same instrument and will be applicable to all milled sodium soaps.

C-4. Test Results

C-4.1 Weigh 5·0 ± 0·05 g of the soap sample into a 100-ml volumetric flask. Proceed as prescribed in **C-3.1** and determine the percentage of hexachlorophene from the standard curve.

APPENDIX D

(*Clause* 3.2.1)

DETERMINATION OF TRICHLOROCARBANILIDE

D-0. GENERAL

D-0.1 Principle — This method is intended for the estimation of 3, 4, 4^1 trichlorocarbanilide, usually in the range of 0·5 to 2·0 percent by ultraviolet absorption. It is designed to minimize interference due to the ultraviolet absorption of the soap matrix. It involves the separation of trichlorocarbanilide by acetone extraction, followed by evaporation and

serial extraction of the residue with 0·1 N NaOH and water. After dissolution in alcohol and dilution, the trichlorocarbanilide is determined by measurement of its ultraviolet absorption.

D-1. APPARATUS

D-1.1 Ultraviolet Spectrophotometer — equipped with matched 1 cm silica cells.

D-1.2 Buchner Funnel — Fritted borosilicate glass, medium porosity.

D-2. REAGENTS

D-2.1 Ethanolic HCl (0·5 N) — Dilute 41 ml of concentrate hydrochloric acid (AR) to 1 litre with ethanol (95 percent) — methanol (10 : 1) mixture.

D-3. CALIBARATION

D-3.1 Accurately weigh exactly 0·100 0 g of 3, 4, 4^1 trichlorocarbanilide into a clean 100-ml volumetric flask, dissolve and dilute to volume with alcohol mixture.

D-3.2 Pipette a 5·00 ml aliquot of the solution prepared in **D-3.1** into a clean 100-ml volumetric flask and dilute to volume with the alcohol mixture.

D-3.3 Into each of four clean 100-ml volumetric flasks containing 20 ml of 0·5 N ethanolic HCl, pipette respectively, 5·00, 10·00, 15·00, and 20·00 ml. Aliquots of the solution prepared in **D-3.2** and dilute each to volume with the alcohol mixture. These solutions represent concentrations of 2·5, 5·0, 7·5, and 10·0 mg/l, respectively.

D-3.4 Measure the absorbances of each of the four solutions against a solvent blank (20 ml of 0·5 N ethanolic HCl diluted to 100 ml with the alcohol mixture) at 265 nm.

D-3.5 Calculation

$$\text{Absorptivity, } a_1 = \frac{\text{Sum of the absorbances}}{\text{Sum of the concentrations in mg/l}} \times 1\,000$$

D-4. PROCEDURE

D-4.1 Shave off thin sections of the soap bar with a metal spatula. Accurately weigh 0·5 g of sample into a 150-ml beaker, add 50 ml of acetone, and stir for 20 minutes with a magnetic stirrer. Allow the soap to settle and filter the decanted supernatant liquor by vacuum through a medium

porosity fritted glass funnel. Repeat the 50 ml acetone extraction two more times combining the filtrates. Transfer the combined filtrates to a 150-ml beaker and evaporate to dryness on a steam bath. Serially extract the residue with two 10-ml portions of 0·1 N aqueous NaOH and 5 ml of water, decanting and filtering each extract through a medium porosity fritted glass funnel using vacuum. Discard the filtrate. Add 50 ml of the alcohol mixture to the beaker, cover with a watch glass, and place on a steam bath for 10 minutes. While still warm, filter through the same glass fritted funnel with vacuum into a clean 125-ml filter flask. Wash the beaker and the funnel with two 20-ml portions of the alcohol mixture to ensure complete dissolution of the trichlorocarbanilide. Transfer the combined alcoholic filtrate to a 100-ml volumetric flask, cool to room temperature and dilute to volume with the alcohol mixture. Make appropriate (1/10 ml) analytical dilution to provide a final solution containing 5 to 10 mg/l of trichlorocarbanilide in 0·1 N ethanolic HCl. (A calculated volume of 0·5 N ethanolic HCl is added to the final solution).

D-4.2 Measure the absorbance (A_{265}) of the final solution at 265 nm using, as reference, 0·1 N ethanolic HCl prepared by dilution of 0·5 N ethanolic HCl.

D-4.3 Calculation

$$\text{Trichlorocarbanilide percent by mass} = \frac{A_{265}}{a_1 \times \text{Sample mass in g per 100 ml of solution read}}$$

(*Continued from page* 2)

Members	*Representing*
DR B. P. GODREJ	Godrej Soaps Ltd, Bombay
SHRI M. S. THAKUR (*Alternate*)	
SHRI P. V. GUJARATHI	Khadi & Village Industries Commission, Bombay
SHRI P. P. KHANNA	Nand Kishore Khanna & Sons, Bombay
SHRI N. N. KHANNA (*Alternate*)	
SHRI C. R. KRISHNAMOORTHY	Swastik Household & Industrial Products Ltd Bombay
DR V. K. BANSAL (*Alternate*)	
SHRI K. S. KRISHNAN	Oil Technologists Association of India, Kanpur
SHRI M. SATYANARAYANA (*Alternate*)	
SHRI SHRIDHAR KRISHNAN	K. S. Krishnan & Associates, New Delhi
SHRI K. S. KRISHNAN (*Alternate*)	
SHRI P. R. MALHAN	Office of the Development Commissioner (SSI), New Delhi
SHRI R. MUKHOPADHYAY (*Alternate*)	
SHRI K. C. MATHUR	Shriram Foods & Fertilizer Industries, New Delhi
SHRI K. P. SHARMA (*Alternate*)	
SHRI S. M. MODY	Johnson & Johnson Ltd, Bombay
SHRI S. D. PARANJAPE (*Alternate*)	
REPRESENTATIVE	Consumer Guidance Society of India (Regd), Bombay
SHRI S. M. SAHNI	Hindustan Lever Ltd, Bombay
SHRI R. S. SAREEN (*Alternate*)	
SHRI SANTOSH KUMAR	Federation of Associations of Small Scale Soap & Detergent Manufacturers of India, New Delhi
SHRI P. K. SHANBHAG	Karnataka Soaps & Detergents Ltd, Bangalore
SHRI LOKESH GOWDA (*Alternate*)	

AMENDMENT NO. 1 MAY 1992

TO

IS 11479:1985 SPECIFICATION FOR ANTIBACTERIAL TOILET SOAP

(*Page* 3, *Foreword, clause* **0.4**)- Add the following after clause **0.4** and renumber the subsequent clause:

'**0.5** A scheme for labelling environment friendly products to be known as ECO Mark is being introduced at the instance of the Ministry of Environment and Forests (MEF). The ECO Mark shall be administered by the Bureau of Indian Standards (BIS) under the BIS Act, 1986 as per the Resolution No. 71 dated 20 February 1991 published in the Gazette of the Government of India. For a product to be eligible for ECO Mark it shall also carry the standard mark of BIS for quality besides meeting additional optional environment friendly (EF) requirements. The EF requirements for antibacterial toilet soap are, therefore, being included through Amendment No.1 to this standard.

A proposal to incorporate some more EF requirements in phases is also under consideration and would be included in due course.'

(*Page* 5, *clause* **3.3.1**) - Add the following after **3.3.1**:

'**3.4 Optional Requirements for ECO Mark**

3.4.1 *General Requirements*

3.4.1.1 The product shall conform to the requirements for quality, safety and performance prescribed under clauses **3.1** to **3.3**.

3.4.1.2 The manufacturers shall produce to BIS environmental consent clearance from the concerned State Pollution Control Board as per the provisions of the Water (Prevention and Control of Pollution) Act,1974 and Air (Prevention and Control of Pollution) Act,1981 along with the authorization, if required under the Environment (Protection) Act,1986, while applying for ECO Mark.

3.4.2 *Specific Requirements*

3.4.2.1 The material shall neither contain any synthetic detergent when tested as per the method given in Annex B and C of IS 4955:1982* nor any phosphate when tested as per the method prescribed in **20** of IS 286:1978+.

3.4.2.2 The material shall pass the test for dermatological safety when evaluated as per the method prescribed in IS 13424:1992#'

(*Page* 5, *clause* **4.1**) - Add the following after **4.1:**

' **4.1.1** For ECO Mark the product shall be packed in such packages which are made from recyclable/reusable or biodegradable materials and declared by the manufacturer and may be accompanied with detailed instructions for proper use.'

(*Page* 6, *clause* **4.2**) - Add the following after **4.2 (f):**

'(g) List of identified critical ingredients in descending order of quantity, percent by mass for ECO Mark,

(h) The criteria for which the product has been labelled as ECO Mark'

---

* Specification for household laundry detergent powders (second revision)

\+ Methods of sampling and test for soaps (second revision)

\# Methods of test for safety evaluation of bathing bars and toilet soaps.

(CHD 025)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 2 MAY 1994
TO
IS 11479 : 1985 SPECIFICATION FOR ANTIBACTERIAL TOILET SOAP

[*Page* 2, *Amendment No.* 1, *clause* **4.2** (g)] — Substitute the following for the existing clause:

'**4.2** (g) The following identified critical ingredients in descending order of quantity, percent by mass, for ECO Mark:

i) Total fatty matter (TFM),

ii) Water insoluble matter, and

iii) Antibacterial agent.'

(CHD 25)

Reprography Unit, BIS, New Delhi, India